

ABSTRACT

A frequency synthesizer is disclosed. According to one embodiment, the frequency synthesizer includes a phase locked loop (PLL) having an analog mixer phase detector and an auxiliary digital frequency detector coupled to the phase locked loop. The PLL may include a programmable divider having an input terminal responsive to an output signal of the frequency synthesizer and having an output terminal coupled to an input terminal of the analog mixer phase detector, a loop filter having an input terminal coupled to an output terminal of the analog mixer phase detector, and a voltage controlled oscillator having a control terminal coupled to an output terminal of the loop filter. The programmable divider may include a direct digital synthesizer.